Wellness Counseling and Education Effects on Diabetes Self-Management

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Abstract

The project's purpose was to assess the effects of wellness counseling and education on individuals with elevated HbA1c levels to enhance and strengthen their diabetes self-management skills. The project provided wellness counseling on lowering their blood glucose levels, including the topics of medication adherence, healthy eating and nutrition, and physical activity. Six individualized wellness counseling sessions were held with 18 participants with uncontrolled diabetes ages 31-65 years, who reside in a rural area of eastern North Carolina. Quantitative findings indicate that with counseling, HbA1c levels can be reduced. Qualitative results found several areas where the participants could make improvements, including (a) an understanding of how diabetes affects the body, (b) a better understanding of how insulin, both natural and supplemental, works in the body, (c) what each medication does to control diabetes, (d) how stress affects blood glucose, and (e) how healthy eating and nutrition along with physical exercise reduces glucose levels and creates energy. Improvements in diabetes self-management using wellness counseling as a technique can assist participants in reducing their HbA1c levels as well as preventing the longer-term complications of heart disease, renal disease, loss of limbs, stroke, and dementia.

Keywords: wellness counseling, diabetes self-management, diabetes medication adherence, diabetes healthy eating and nutrition, diabetes physical activity

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Section I. Introduction

Background

"Diabetes is a complex chronic illness, requiring continuous care with multifactorial risk-reduction strategies" (American Diabetes Association (ADA), 2020, p. S1). With uncontrolled diabetes, there is a risk for cardiovascular disease and microvascular complications, leading to kidney disease, loss of peripheral vasculature, and diabetic retinopathy. These diseases additionally lead to cognitive decline and other impairments to the quality of life. In 2018, 34.2 million Americans, or 10.5% of the population, had diabetes (CDC, 2018). The prevalence of diabetes in Americans age 65 and older remains high, at 26.8%, or 14.3 million seniors (diagnosed and undiagnosed) (ADA, 2018).

Glycemic control is one of the strategic outcomes, but control of HbA1c levels requires the pursuit of several interventions (tactics). There are pharmacologic approaches, nutrition, dietary management, weight loss, increasing physical activity, and blood glucose tracking, to name a few (ADA, 2020). Optimal outcomes require a patient-level approach because everyone's comorbidities and prognosis are different. Recognizing one size does not fit all patients, individual preferences, goals, and needs must be considered when making clinical decisions and assisting patients in meeting their glycemic control goals.

Because patients need self-management support, the ADA (2020) and the Department of Health and Human Services (DHHS, 2017) recommend providing counselors, health coaches, navigators, or community health workers for this effort. The Community Preventive Services Task Force (CPSTF), a task force of the Center for Disease Control and Prevention (CDC), recommends interventions to help patients manage their diabetes glycemic control, to reduce their health care use, and prevent the outcomes of uncontrolled diabetes (Jacob et al., 2019).

A rural eastern North Carolina clinic, the project site, has many diabetes patients who continually come with glycated hemoglobin (HbA1c) over 9.0%. The desired CDC target is 7.0% (ADA, 2020). The clinic identified a need to assist patients with high HbA1c numbers to bring their diabetes under control. During the last quarter of 2020, 22.5% of the individuals seen at the clinic had uncontrolled diabetes, with HbA1cs over 9.0%. Patients of every age seen at the clinic, with better self-management actions, could prevent the sequela of diabetes.

Organizational Needs Statement

At the clinic, about 18% of all individuals seen have diabetes. Diabetes is the sixth leading cause of death in the county, with a death rate of 88.7 deaths per 100,000 individuals. The county's diabetes death rate is 27.0%, 15% higher than North Carolina's rate. An analysis of the Behavioral Risk Factor Surveillance System (BRFSS) from the North Carolina State Center for Health Statistics (2017) reveals the following:

- "In 2017, 13.8% of adults in Eastern North Carolina (ENC) reported they had been told by a doctor or other health professional that they have diabetes compared to 12.8% of adults in 2015.
- In 2017, 1 out of 2 (51.2%) of Eastern North Carolina adults ages 55-74 have an HbA1c test performed at least two times or more for 12 months, compared to 80.7% in 2015."

This area has a much higher percentage of diabetes individuals, as seen in the statistics above, and diabetes in seniors is over 50%. The county Public Health Department and the project site primary care providers realized the healthcare afforded citizens is not meeting the patients' needs because of uncontrolled diabetes afflicted individuals. The numbers were substantial enough to be considered a continuing problem. Healthcare providers in the county and the project site are very concerned about diabetes, especially in individuals with higher

HbA1cs than the national benchmark of 7.0% (ADA, 2020). Both the county and the project site providers desire an initiative to help its patients lower their HbA1c closer to the national standard. The distribution of educational pamphlets, brief doctor's diabetes orientation at office visits, and periodic counseling have already been tried. None of these interventions were effective in lowering the patients' HbA1cs.

The CDC and the ADA establish the national benchmarks (2020). The primary assessment tool is the HbA1c blood test, which measures the average glycemic levels over the most recent 90-day period. According to guidelines, the test is to be performed at least two times a year in those patients meeting their treatment goals and quarterly for patients whose therapy was changed or those not meeting glycemic goals (ADA, 2020). The test is excellent for National Glycohemoglobin Standardization Program certified assays and has a strong associative value in predicting diabetic complications. Other tests are available, such as the fructosamine and 1,5 -anhydroglucitol, which can be used, however translation into average glucose levels, and their prognostic significance is not as straightforward as the HbA1c (ADA, 2020). An estimated intermediate glucose level is translated into blood glucose levels and found in Appendix A.

Hyperglycemia is defined as an HbA1c of 7% or greater by the ADA and CDC. When glycemic control is near 7.0%, there is a 50-76% reduction in microvascular complication development and progression (ADA, 2020). The most common complications are retinopathy, neuropathy, and diabetic kidney disease. Continued poor control can also lead to cardiovascular and peripheral vascular diseases. Good glucose level control achieved early in the disease process reduces these disease complications. To prevent the most significant number of complications means taking patients from poor self-management to fair or good control.

Now how does this align with Triple or Quadruple Aim? The three aims laid out by the Institute of Healthcare Improvement (IHI) for Triple Aim include 1) population health, 2) patient experience, and 3) per capita costs (IHI, 2020). Triple Aim follows this concept design (p. 2):

- Focus on individuals and families
- Redesign of primary care services and structures
- Population health management
- Cost control platform
- System integration and execution

The first concept in the design focuses *on the individual and family* (IHI, 2020). To achieve necessary HbA1c levels, the provider must spend quality time with the patient and family members going over their diabetes self-management skills. Additionally, finding and correcting the patient's self-management deficits can improve their ability to control their glucose levels. By working with the patients and their families during extended visits, education seminars, and wellness counseling sessions, patients can find themselves feeling more self-confident in managing their diabetes.

The second concept is the *redesign of primary care services and structures* (IHI, 2020). To do this, a new way of managing patients with diabetes was necessary. Longer visit times for the healthcare provider to focus on patient issues and new services are required. Follow-up on their patients' self-management skills and status involved a redesign of the current health care services.

Next is *population health management*. This concept requires identifying the target population and working with patients to control their glycemic numbers. Proven interventions reduce uncontrolled diabetes in the remainder of the community, leading to a healthier

population (IHI, 2020). Ways to improve glycemic control (healthy eating, physical activity, weight control, and a reduction of carbohydrates in the diet) will also lead to better management of most chronic illnesses associated with uncontrolled diabetes, such as hyperlipidemia, kidney failure, heart failure, and fatigue.

The fourth concept in the design is *cost control.* With better management and lower HbA1c numbers, the patient will require fewer follow-up visits. Also expected are lessor effects on health due to reduced cardiac, kidney, and peripheral vascular disease (ADA, 2020).

Finally, the last item in the concept design of the Triple Aim is *system integration and execution* (IHI, 2020). Implementing the system redesign in the manner proposed, tested, and modified, improves the healthcare provider's provision of services. Additionally, health care providers involved in the redesign of their system find acceptance more readily.

For the Quadruple Aim, *health equity* was the principle proposed. In this clinic run by the county public health department, patients who cannot afford adequate health insurance to access non-public health care facilities can come to these clinics for care. Many of those patients are members of minority populations. Since diabetes disproportionally affects African Americans and other minorities (Appendix B), developing a means of reducing diabetes self-management disparities through a proposal for working with these individuals was necessary (ADA, 2018). Many of these individuals can access telehealth, so care can be provided through a counseling and education mechanism and not require the patient's physical presence more often than the regular follow-up care appointment.

Problem Statement

A rural clinic in eastern North Carolina sees significant numbers of patients whose HbA1c levels are elevated and desires to help these individuals lower their levels. Previous use

of educational pamphlets, formal Diabetes Education, and healthcare provider counseling were ineffective in reducing patients having elevated HbA1c levels. Since previous efforts were not enough, another strategy, such as wellness counseling, was necessary for working with this population.

Purpose Statement

The quality initiative aimed to establish wellness counseling and education in the clinic to reduce HbA1cs in the diabetes population. In conjunction with the clinic's healthcare provider, the project lead assisted patients with elevated HbA1c readings by counseling them on a bi-weekly basis to improve patient diabetes self-manage skills and prevent disease sequela. Wellness counseling is a personalized program addressing an individual's diabetes self-management skills and identification of improvements needed.

Section II. Evidence

Literature Review

The literature search was to find evidence-based wellness counseling material to strengthen diabetes patient self-management skills. The project lead used a combination of Medical Subject Headings (MeSH) terms and keywords. The search terms and keywords included: diabetes guidelines, diabetes self-management, wellness counseling, physical activity and diabetes, diet and nutrition in diabetes management, medication adherence in diabetes management, and reductions in HbA1c's through lifestyle or behavioral changes. The search was conducted in MEDLINE via PubMed and EBSCO-host research databases. Inclusion criteria included literature published in peer-reviewed journals between 2016 and 2020 and written in English. The initial search resulted in 76 articles meeting wellness counseling parameters and individualized education and counseling effects on diabetes self-management in physical activity, medication adherence, diet, and nutrition. Screening these articles resulted in 22 being removed as they were editorial letters, conference abstracts, and opinion articles. Twenty-six were excluded from the search as articles dealing with gestational or pediatric diabetes self-management and diabetes prevention.

Using the hierarchy of evidence levels of Melnyk and Fineout-Overholt (2011), 26 articles met the inclusion criteria. Those articles are randomized control trials (RCT), (Level II), systematic reviews, and RCTs' meta-analysis at Level 1. Following the abstracts review of all the articles and a complete reading of most of the articles, nine were retained, which directly dealt with individualized wellness counseling, medicine adherence, physical activity, diet, and nutrition. Two articles were added due to previous knowledge of the publication history on Wellness Counseling, resulting in 11 articles that met the search criteria. Finally, the American

Association of Diabetes Educators (AADE), Diabetes Education Curriculum: A Guide to Successful Self-Management, was used as a reference guide based on the ADA guidelines. A matrix of the search is found in Appendix C. A list of the articles used from the literature search is found in Appendix D.

Current State of Knowledge

In 2020, the ADA published the latest guidelines in chapter five of the Standards of Care—Medical Care in Diabetes containing up-to-date diabetes management parameters. According to the latest guidelines, the way to achieve the glycemic targets are effective behavior management and support of the patients' psychological well-being. These two factors are foundational to attain treatment goals for people with diabetes. Essential to achieving these goals are diabetes self-management education (DSME), nutrition therapy, routine physical activity, smoking cessation counseling when needed, and psychosocial care (ADA, 2020). Glycemic targets remain the same as in previous guidelines at <7.0%.

Wellness counseling "provides strength-based strategies for assessing clients, conceptualizing issues developmentally, and planning intervention to remediate dysfunction and optimize growth" in health (Myers & Sweeney, 2008, p. 482). Counselors aim to encourage wellness through interventions that enhance preventative and evidence-based practice because ethical practice requires evidence-based techniques. Wellness counseling uses the Wheel of Wellness theoretical model, which defines wellness as a life oriented to achieve optimal health and integrates the body, mind, and spirit to live life fully in an optimum state of health and well-being (Myers et al., 2000). It is an assessment guide and provides a theoretical framework of wellness-oriented counseling.

There is evidence that wellness counseling techniques can improve patients' self-management of their diabetes. People with diabetes make a myriad of daily decisions about their self-care that impact their overall health status. Education and counseling about wellness and the disease itself help individuals make the best decisions that lead to optimum health (AADE, 2016). Counseling improves glucose regulation in patients using self-determined personal goals, increasing physical activities, and attaining behavioral support from healthcare providers. Counseling improves and enhances patient self-management by using evidence-based information, shared decision-making, and collaborative goal-setting concepts. Additionally, valuable precepts from various behavioral change theories and models can support behavior and lifestyle changes. A coordinated approach to monitoring, education, and support by the health care professional is necessary (Lee et al., 2017).

The proposed wellness, diabetes counseling, and education sessions include personal and individualized management by the health care provider, emphasizes care issues, skill acquisition by the diabetes patient in self-management, and strengthening problem-solving in day-to-day diabetes management. The counseling process focuses on behavior modification and patient goal setting, along with general psychosocial support. Personalization of counseling sessions is required and based on the individual's circumstances (AADE, 2016).

Current Approaches to Solving Population Problem(s)

Several approaches exist to help patients reduce their HbA1c. Methodologies often include telephone monitoring applications, diabetes education, seminars, continuous glucose monitoring, improving physical activity regimens, and provider counseling at the patients' periodic follow-up office visits (ADA, 2020). The approach identified for this quality project was Wellness Counseling, a holistic model for treatment planning (Myers et al., 2000). Myers et

al. define wellness as a life-oriented way to attain optimal health, allowing individuals to live fully. An image of the Wheel of Wellness depicted in Appendix E has at its center the concept of spirituality. Myers et al. (2000) define spirituality "as an awareness that transcends the material aspects of life and gives a deep sense of wholeness or connectedness to the universe" (p. 252). In this wheel, spirituality is not the religiosity of public faith but a more private concept representing the individual's personal beliefs and values.

Radiating from the wheel's center are 12 spokes representing the individual disciplines directing daily activities and longer-range goals for individuals (Myers et al., 2000). Of those 12 spokes, eight were extensively utilized during counseling and education in this quality initiative. The spokes with the main focus found in wellness counseling are self-care, exercise, nutrition, and problem-solving. Four other spokes support the individual's well-being in this project: stress management, realistic beliefs, emotional awareness, and a sense of worth. The wheel is the guide for assessment and wellness-oriented counseling.

The collaborative setting of behavior changes and objectives should occur after education about each behavioral purpose (nutrition, exercise, and medication adherence) (AADE, 2016). Since the goals are patient-centered, they are set by the participant because the participants' self-care and behavioral changes are what they feel are important and needed; however, the counselor may suggest some realistic goals to stimulate the conversation and selection process. The target was to set objectives, so they result in significant declines in HbA1c overall.

Managing diabetes can also be challenging for people living in lower socioeconomic status communities, such as this clinic's location (Wayne et al., 2015). Providing cost-effective interventions to improve diabetes self-management is vital to improving an individual's quality of life and medical care access. The lower-socioeconomic population confronts higher mortality

risks and challenges to their health maintenance than higher socioeconomic communities. Wayne et al. found individuals who sought health care services on a reactive basis are less likely to access preventive services. Wellness counseling and preventive care can lead to significant improvements in HbA1c levels and psychosocial functioning. The uniqueness of enhanced usual care for those individuals partly explains the HbA1c gains achieved by Wayne et al.'s study's participants.

Wellness counseling and the health care team's support were a new approach never used at this clinic. Previous quality initiatives tried various methods to provide patient diabetes education in the past, without success. This intervention addressed behavior objective setting and wellness counseling aspects of diabetes care, patient involvement in self-determination, and collaboration in developing individual care plans to improve diabetes self-management skills.

Evidence to Support the Intervention

The three counseling areas proposed for the quality initiative were medication adherence, nutrition and healthy eating, and physical activity. The first area of counseling and education to be undertaken was medication adherence. AADE (2016) undertook a systematic review of the "evidence of the challenges and barriers to medication taking (adherence)." Barriers identified included depression, complex medication regimens, lack of understanding about the drugs and how they work, and a lack of confidence in the patient's ability to manage self-care. According to Gonzales et al. (2016), some psychosocial factors to consider in counseling practice are participant modifiable factors. The domains involved are knowledge, beliefs, related cognitive domain functions, emotional distress and well-being, behavioral skills, and coping. Promoting medication adherence reduces the emotional stress associated with the disease of diabetes. In

addition, it provides education and counseling in behavioral skills to promote successful self-management and support in their diabetes care.

The second area of counseling and education was nutrition and healthy eating. The literature states nutrition therapy is essential to diabetes self-management (Mottalib et al., 2018). In the Mottalib study, the purpose of nutrition counseling was to help the participant adhere to an agreed-upon nutritional intervention. The counselor guides the participant in dietary planning and answers questions that might arise during the nutrition intervention. Changes in nutrition included reducing the number of high carbohydrate foods, practicing portion control, and sticking to daily calorie consumption goals (AADE, 2016).

The last counseling area was to influence the participants to increase their physical activity time to 30 minutes daily or as a minimum of 150 minutes a week. This increase in physical activity is associated with decreased HbA1c (McCarthy et al., 2017). Since physical activity was one of the counseling strategies to be used, partnering with a spouse for a walk or attending the gym with a friend is effective. Wellness counseling encourages the participants to set goals for physical activity or walking to improve diabetes self-management. The physical activity goal must be specific, measurable, attainable, realistic, and progressive over time (AADE, 2016). If the participant is sedentary when counseling begins, exercise should start slowly and increase the participants' effort over time. Physical activity counseling should encourage progression to moderate-intensity aerobics as endurance is achieved (Powell et al., 2016).

Evidence-Based Practice Framework

This quality initiative used the Plan-Do-Study-Act (PDSA) operational framework. The PDSA cycle started as the Plan, Do, Check, Act cycle and was introduced by Walter Shewhart in

the 1920s. It formed the basis of W. E. Deming's (1982) approach to organizational development and leadership in his book "Out of Crisis." Dr. Deming was an engineer and a statistician and believed Americans failed to improve their products' quality because they failed to plan for the future and for success. In the mid-80s, the United States military trained all its officers in total quality management (TQM) systems based on Dr. Deming's 14 points of management to enhance military planning. Plans were implemented and tested in the operational arena by military personnel, then studied, and iterative changes were made to obtain the best possible solutions to the military's problems in accomplishing challenging missions.

The PDSA cycle is an improvement process commonly used in health care settings. As a healthcare quality tool, it is associated with the iterative cycle of change used to optimize outcome goals in the quality process (Crowfoot, & Prasad, 2017). The iterative process helps minimize resistance when change is implemented and allows stakeholders to gain confidence in the change process. This structured approach to quality change can also engage learning and enable significant improvements to be made. An essential aspect of creating change through the PDSA framework is that stakeholders can support the change's sustained success and incorporate it into the clinic protocols to maintain sustainability over the longer term. In this quality initiative, the stakeholders are the healthcare system, providers, and patients, who all benefit from the change.

From an operational perspective, the PDSA cycle is a four-staged cycle focusing on the continuing improvement of a process (Crowfoot, & Prasad, 2017). In the *plan* stage, assessing what is currently happening is necessary to find strengths, weaknesses, opportunities, and threats to an area of concern within an organization or process. The process is also known as the Strengths, Weaknesses, Opportunities, and Threats (SWOT) identification process. Once the

SWOT analysis is conducted and the area requiring change is identified, the planning can begin and become the basis for change. Getting stakeholder support is part of the *plan*ning stage and essential to the success of the project. The next stage is *do*, which is implementing the change and recording the consequences and outcomes of the plan, including successes and unintended or unplanned responses. *Study* is the third stage, and it identifies whether an improvement was made and if further changes are required to optimize the initiative's outcomes. In this project, auditing the patient lifestyle modification achieved upon each counseling session and studying the impacts of counseling on their motivation to improve their HbA1c readings were recorded and included in their electronic health record. During the *study* stage, the project lead and site champion reviewed the activities and the program, using Appendix F, to see if any changes should be made to the *plan* or *do* stages. The final is to *act* on findings and improvements and make incremental plan changes if needed. Then the cycle begins again.

Ethical Consideration & Protection of Human Subjects

The four major ethical principles identified in this initiative are justice, non-maleficence, beneficence, and respect. The principle of justice is fairness and equity; specifically, all humans have equal worth and are entitled to equal treatment without prejudice (Hennekens & Drowos, 2020). All eligible individuals received recruiting phone calls requesting their participation in the counseling sessions in facilitating this initiative. For those identified with uncontrolled diabetes during clinical visits, the project lead informed them about the program and asked if they would like to participate. Those agreeing to participate did so on a volunteer basis. All six wellness counseling sessions were available to those participating.

Regarding non-maleficence, the participant's well-being was of utmost concern in this initiative (Hennekens & Drowos, 2020). The initiative stressed only the positive attributes of

successful self-management. Previous diabetes failures were left in the past and avoided to eliminate the possibility of shame or stigmatization. Each participant started the program by setting their own outcome goals. Additionally, the healthcare provider reviewed each participant's medical record to ensure participants had no medical conditions that could harm them during the initiative, specifically the interventions to increase physical activity or prescribed dietary restrictions. The sessions emphasized medication adherence, nutrition and healthy eating, and physical exercise to reduce their blood glucose levels.

The healthcare providers' goal was to provide a benefit (beneficence) to each patient. The beneficence principle, closely linked to non-maleficence, provides care in the patient's best interest to improve the individual's welfare and wellness. The definition of beneficence implies compassion and rules for the subject's protection, including confidentiality and excellence in care (Hennekens & Drowos, 2020).

Respect for persons and their autonomy was a quality stressed in this initiative (Hennekens & Drowos, 2020). Hopefully, the participants' desires and goals promote better outcomes in controlling their diabetes as measured by their HbA1c levels. Treating everyone with the same counseling interventions and respecting their autonomy was a must. Providing information to participants about the initiative's aims and benefits was a significant recruitment incentive. Lastly, the participants had the opportunity to withdraw from counseling sessions if they desired.

As always, the protection of human participants was a top priority. The quality initiative used proven evidence-based practice in the project, minimizing ethical issue exposure to the target population. The project aimed to maximize benefits to the participants and minimize any

harm associated with social or behavioral, psychological, economic, or physical situations (Arwood et al., 2020).

The rural clinic did not have an existing Institutional Review Board (IRB); therefore, the project lead's University provided the quality IRB review process. An IRB reviews the project to protect human subjects from physical and psychological harm. The review included the quality initiative's protocol and any materials used in the initiative. A review of the protocol assesses the methodology to ensure ethical issues do not exist and individuals are fully informed of the initiative's process and voluntary participation. The IRB seeks to maximize all participants' safety (Hennekens & Drowos, 2020). After the project lead completed the Collaborative Institutional Training Initiative (CITI) training online, a self-certification review was conducted with the site champion with questions concerning the training and the project's ethical approach.

The CITI training reaffirmed the project lead's ethical beliefs. This training was essential to the project because many diabetic patients struggle with controlling their diabetes. They continually visit their primary care providers and are often criticized for poor management of their disease. With wellness counseling and education, the emphasis was on the positive aspects of patient behaviors and efforts to improve self-management and behavioral changes.

The project lead prepared the quality initiative self-certification for the University's Institutional Review Board (IRB) in conjunction with the project site champion. The quality initiative (QI) received approval for planning and implementation. The University review deemed the project as QI. No further formal IRB review was required because, following federal regulations, the quality initiative does not constitute research as defined under 45 CFR 46.102(d).

Section III. Project Design

Project Site and Population

This quality improvement project evaluated whether wellness counseling and education could reduce the participants' elevated HbA1c. The counseled group included patients with HbA1cs over 9.0% at a rural clinic in eastern North Carolina. Wellness counseling provided evidence-based strategies for assessing the participants' present self-management status and planned interventions to optimize their health and build more robust disease management skills. During the counseling process, the patients identified goals in three specific areas of diabetes management: nutrition and healthy eating, physical activity, and medication adherence. Counseling and education delivery were implemented in six 30-minute sessions, with two sessions dedicated to each of the three topic areas. The project implementation was executed over three months.

Description of the Setting

The project site was a community health clinic in a rural area of eastern North Carolina. The median income is $50,634 in the county it serves, compared to the U.S. median income of $61,937. The proportion of persons living below the poverty line is 14.8% in the county, compared to a national average of 11.8% (The United States Census Bureau, 2019). The unemployment rate in July 2020 was 7.6%, compared to a North Carolina rate of 8.8% and a national rate of 10.2% (Homefacts, 2020). In January 2020, prior to the COVID 19 pandemic, the unemployment rate was much lower at 4.2% compared with the North Carolina rate of 4.1% and a national rate of 3.6%.

The clinic is an annex operating under the auspices of the local public health department. The clinic provides comprehensive primary and preventive care services to residents of all ages,

regardless of their ability to pay. The clinic accepts most private insurances, N.C. Health Choice, Medicare, Medicaid, and for individuals who are un- or underinsured, sliding scale fees with proof of income and family size. A flat fee is charged for clinical services to unemployed individuals who cannot access other services due to their financial status. The clinic sees approximately 300 patients a month. Currently, 120 of the patients seen each month are self-pay individuals who carry no insurance. Adult primary care patient visits make up about 68%-70% of total office appointments. The clinic staff consists of a family nurse practitioner, a lab technician, two registered nurses, a nutritionist, two front office receptionists, and an office manager.

The mission statement of the clinic best describes its role in this rural area of North Carolina. The mission of the clinic is to improve the health status and quality of life of the nearby citizens by providing:

- "A doorway of access to the medical community.
- Environmental services to ensure a safe community in which to live.
- The highest quality services at the most efficient cost.
- Prevention, screening, treatment, referral and education services."

Description of the Population

This rural clinic currently sees approximately 350 diabetes patients. The project site champion identified approximately 47 patients with elevated blood glucose readings above 9.0%. Volunteer participants came from the population of individuals seen at the clinic with HbA1c > 9.0% at their last clinic visit. Criteria for participation in the counseling sessions were diabetes patients with HbA1c >9.0%, over the age of 21, English-speaking, and with uncontrolled diabetes at their last clinic visit. Several of the patients were not eligible based on these criteria.

The project site champion identified approximately 39 patients who met the eligibility requirements. Recruitment phone calls were made in January and February 2021 by the project lead, inviting volunteers for wellness counseling and education sessions. This initiative aimed to implement sessions resulting in behavior change, lifestyle modification, and overall health improvement.

Project Team

The project team composition was the project lead, the site champion, a faculty advisor, and a diabetes educator. The project lead was responsible for planning the Quality Initiative (QI), recruiting participants, conducting wellness counseling and education sessions, and evaluating the participant barriers, obstacles, and outcomes. In conjunction with the site coordinator, the project lead made appropriate modifications necessary to the project, using the PDSA process during implementation and data collection. In this project, the counselor, who is also the project lead, is a registered nurse with a Master's in Human Development, emphasizing individual and group dynamics. The counselor is also a certificate holder in Wellness Counseling from Cornell University.

The project site champion provided administrative support prior to and during the QI, especially in identifying eligible participants. The faculty advisor provided advice to the project lead throughout the initiative's development, the IRB review process, implementation, evaluation of the outcome data, and technical aspects of disseminating the findings. The diabetes educator served as a content expert on counseling and education to the project lead.

Project Goals and Outcome Measures

Wellness counseling aims to allow the participants to change their lifestyles, modify their behavior, and provide them with the necessary skills to manage their daily blood glucose levels.

The social and environmental barriers of job demands, family financial management, and associated stressors, along with other responsibilities, may make it challenging for an individual to focus on their self-management of diabetes (Myers et al., 2000). Through counseling sessions, the participant can take time to focus only on their diabetes. During the project, patients tracked their blood glucose levels and kept a private record to refer to during the counseling sessions. This methodology allowed the participant to "see" the improvements they were making in each topic area.

The project's operational tool was the PDSA framework. This framework allowed for interim reviews, addressing any concerns about the participants' understanding of the material and making necessary modifications to improve project implementation. The PDSA worksheet (Appendix F) guided the review process (IHI, 2017). During the PDSA biweekly reviews, an analysis of counseling sessions was conducted, and information changed when necessary. However, the counseling goal remained to provide the participant with the information they needed to attain their personal goals. Measurable quantitative outcomes included the pre-and-post HbA1c readings of each participant. Additionally, participants' qualitative comments regarding their personal diabetes management goals, barriers encountered, obstacles overcome, progress made or not made, and the counseling process was noted on the counseling guides. These qualitative statements were evaluated to ascertain whether the counseling process was helpful or hindered the participants' learning and changes to self-management behaviors.

Description of the Methods and Measurement

Six wellness counseling and education sessions were provided to each participant at approximately two weeks intervals and focused on eliciting participant motivation for health behavior change while encouraging participants to identify priority areas they wished to address.

During the counseling sessions, participants identified goals and barriers they encountered and became competent in problem-solving techniques to better manage their diabetes. Participant goals are essential to their success and established personal accountability. An evaluation of the participant's ability to deal with their glucose management issues and barriers was noted in their counseling notes. Participant's specific comments were collected for qualitative analysis and to evaluate themes and trends (Appendix G). On the individual participants' counseling guide (Appendix H), an annotation was made of the participants' progress towards personal goal achievement. These annotations were helpful in the next consecutive counseling session to remind of the previous session's accomplishments and the patient's continuing goals.

A post-implementation series of reviews and questions were surveyed in the last counseling session. The reviews, questions, and answers were used to evaluate the participants' final progress towards goal achievement, behavior and lifestyle modification changes made, development of problem-solving skills, and their satisfaction with the wellness counseling sessions.

Common Barrier

The most significant barrier experienced was the establishment and maintenance of communications with the participants. Several counseling methods were offered to the participants to deal with this possible challenge, including telehealth, telephone counseling sessions, and face-to-face visits. The participant selected the best way for them to participate, and all counseling sessions took place while the project lead was at the clinic and at a time of the participants' choosing.

Another common barrier was attrition from the project. Initially, 39 individuals were identified to participate in the entire six sessions. Twenty-five were accepted, and 18 participated in counseling sessions, ten completing all the sessions.

Another barrier seen and projected was the participants' struggle with the day-to-day decisions contributing to the burden of managing the disease of diabetes (Miyamoto, 2019). The decision-making from the first session to the last session with ongoing wellness counseling and education.

Discussion of the Data Collection Process

Participants involved in the QI were assigned numbers to keep the individuals' identities secure and for tracking purposes. The project involved three methods of data collection. The first type of data was the counselor's notes from the participant encounters. The counseling notes included the participant's motivation for health care change, self-identified barriers, and their prioritized goals within the three diabetes management areas offered. Additionally, the notes contained qualitative statements made by the participant relating to their counseling experiences. Finally, the encounters' documentation (counseling notes) were stored in a locked drawer in a secure space within the clinic. The project lead summarized the counseling encounters and provided them to the project site champion for inclusion in electronic health records.

The second type of data provided by the project site coordinator was the HbA1c levels taken prior to project implementation and a second HbA1c taken post-counseling. This quantitative data was used to evaluate HbA1c improvement after project implementation. HbA1cs were recorded on an excel spreadsheet for data analysis (Appendix I). A statistical

analysis was conducted by examining the data and evaluating the overall improvement in the HbA1c of participants.

The third type of data collected included participants' final session responses to achievements of established goals, behavior modifications and lifestyle changes, development of problem-solving skills, and satisfaction with the counseling sessions. The questions and discussions were designed to elicit the participants' progress and experiences during the counseling intervention and their satisfaction with the sessions. The participant's responses to these specific items were compiled into an excel spread format outlining the participants' general responses to questions (Appendix J).

Implementation Plan

The quality initiative project focused on uncontrolled diabetes participants and provided six individualized wellness counseling and education sessions to improve their chronic disease self-management skills. The project was conducted between January-May 2021.

With the list of eligible participants and contact information, the project lead made recruitment phone contacts to invite voluntary participants during January and February 2021. Once participants were identified, the first wellness counseling sessions began in late January 2021 and continued into May 2021.

The first two sessions focused on medication adherence, as the site coordinator felt this was the most significant issue and barrier to the participant's ability to control their diabetes. The medication adherence sessions included discussions on how each participant's medications worked in their body to reduce blood glucose. Additionally, the medication regimen timing was also discussed with each participant and any barriers the participant was experiencing in taking their medications.

The subsequent two sessions delved into healthy eating and nutrition. Each participant first identified what a typical day's eating pattern was and the foods they frequently ate. The discussion aimed to help the individual identify their eating and nutrition deficits and recognize that some of the foods they were eating caused high blood glucose levels. During the sessions, the participants were to identify low carbohydrate foods they liked that could be substituted for the higher carbohydrate food they were consuming.

The final two sessions were about improving the participant's levels of physical activity. Choosing the spring season made it more likely participants would be willing to go outdoors. Each participant was to identify the activity they liked most and ways to increase their activity levels. Participants were told to start slowly and build their endurance levels before doing longer activity sessions, allowing them to participate in an activity they liked and not tire of it quickly because of soreness or fatigue.

The first PDSA review was conducted in mid-February with iterative reviews after each completed session cycle, approximately every two weeks. PDSA reviews included a review of the counseling session's content, participant response to questions, involvement in the counseling sessions, and their ability to set goals for behavior modification. The first PDSA review focused on the medication adherence sessions. The questions specifically focused on whether the sessions met the participants' needs and set participant's goals for adherence to the medication regimen. The second PDSA review reviewed patient progress in medication adherence and the counseling and education sessions on nutrition and healthy eating with the same discussions about setting and meeting goals. Also discussed were the participants' changes in lifestyle modifications to date. The third session focused again on the sessions completed to date, the medication adherence, and nutrition healthy eating wellness counseling session. The

final counseling sessions were during the first week of May 2021. Data collection was ongoing throughout the project implementation, with a review after each cycle of counseling. Definitive quantitative data collection commenced after counseling sessions were completed and HbA1cs available from the project site champion. Qualitative data collected from counseling notes were merged with each participant's quantitative data to evaluate each participant's progress and any behavioral changes made due to the counseling efforts.

Timeline

Planning occurred for the QI project in late September 2020 with the development of counseling guides and project data collection tools. The final letter of support from the clinic was received in early November. With the clinic's approval of the project, the University's clearance was sought using the IRB process. The University's approval for implementation was received in late November, and implementation started in mid-January 2021. Data analysis was conducted in May, and dissemination of findings in July 2021. The paper and the poster presentation were in July 2021. Appendix L outlines the detailed timeline.

Section IV. Results and Findings

Results

An evaluation of the participant outcomes and findings were conducted by the project lead and the project site champion. Twenty-five participants volunteered for the project.

Quantitative

Of the ten participants who completed all the counseling sessions, all reduced their HbA1c levels. Their average reduction in HbA1c levels was 2.97 points. The range of reduction was 5.2 points to 0.9 points (Appendix L).

Another eight completed some of the sessions, and all saw a reduction in their HbA1c levels. Their average reduction in HbA1c was 1.7 points. The more sessions completed, the more likely an improvement in the participant's HbA1c. The range of reductions was 5.0 points to 0.1 points. One participant reduced her HbA1c after five counseling sessions from 12.0% to 7.0%. All the participants completed the medication adherence sessions, and four of the eight completed at least one session of the healthy eating and nutrition counseling sessions.

Seven participants out of the twenty-five who volunteered did not complete any wellness counseling sessions. Of the seven, only one decreased his HbA1c level, which equated to .66 points. These participants did not participate for two reasons; three participants could only receive counseling at night outside of clinic hours approved for the project. The remaining four decided they did not believe participation would benefit them after they volunteered for the project and declined before their first counseling session. Findings from the project reflect that the participants who completed the counseling and education sessions improved their HbA1c compared to those who did not participate.

Qualitative

The qualitative findings fall into three specific categories based on the type of counseling and education received. Those categories were medication adherence, healthy eating and nutrition, and physical activity. In general, most participants reported they understood their pancreas produced insulin to reduce their blood glucose levels. They also recognized their eating habits contributed to the production of glucose, which elevated their blood glucose levels. None of the participants were aware of the concept of insulin's use by the body, and how it reduces blood glucose, what role the liver played in producing glucose, and how to manage their blood glucose level with medications, healthy eating, and physical activity. When participants were asked to describe the disease itself, the majority indicated it was "too much sugar in the blood." They did not understand the destructive role elevated blood glucose levels caused to the body other than "you could have a heart attack or a stroke or lose a leg if it happened for too long."

Medication Adherence. A finding in the medication adherence session was that participants were unaware of how the prescribed medications worked to control blood glucose levels in their bodies. It was found they took the medications or sometimes not, based on their understanding of the use of the medications gleaned from the internet or an explanation from the healthcare provider. None of the participants could tell the project lead what the drug did to reduce glucose levels in their bloodstream or how it works even at the macro level of body functions.

Secondly, if participants experienced an adverse reaction to one of the drugs, instead of calling the care provider to find out what to do, they "just quit taking the medication." Additionally, most participants indicated they did not take fingerstick blood glucose readings as

prescribed. One participant said, “I take my fingerstick in the morning, and if my blood glucose level is fine, I do not take my medications that day.” Another stated,” I only take my blood glucose level when I take my Toujeo in the morning, and if it is at the right level, I do not need my Apidra that day.” Of all the many comments, the one heard most often was, “I only take my medications when my sugars are elevated, and since I don’t eat but one meal a day, they could not be high except when I eat, so I do not do a fingerstick except before mealtime.”

Wellness counseling and education were provided to overcome these perceptions. By the end of the second session, participants reported they had started taking their medications routinely and at prescribed times. Additionally, participants reported an increase in the number of times they took their fingerstick blood glucose levels each day, which is necessary for good blood glucose management.

***Healthy Eating and Nutrition*.** Most of the participants reported they understood their eating habits impacted their diabetes self-management and control of blood glucose levels. During the session, goal setting varied by participants. In general, they worked to reduce alcohol intake, make improvements in eating more proteins, and cut out sweets and desserts, along with portion reduction. Their snacking habits reportedly improved by switching to fatty snacks like nuts and protein bars, along with the drinking of more water instead of sugary sodas and sweetened tea. One participant stated: “ I am not drinking sugary sodas and sweetened tea anymore. I have also cut back on candy, and now my blood sugars are significantly lower. I found I really like cucumbers, green peppers, and romaine lettuce with a little ranch dressing for dipping them in.”

The participants indicated the most challenging habits to break were eating bread, crackers, potatoes, and chocolate. All reported trying to eat more vegetables and reducing their

carbohydrate intake. Those who were eating one large meal a day spread out the carbohydrate intake over two to three meals as a means to even out their blood glucose levels throughout the day. One participant stated: "I am eating two smaller meals a day and a small snack at bedtime, and my blood sugar numbers have decreased overall." Most of the participants indicated they reduced the size of their servings during the counseling.

A participant asked: "Why does my blood sugar always go up when my daughter calls with a problem and causes me anxiety over her issues?" Another asked why her "hot flashes" caused her blood sugar to go up. They were educated on how the liver produces glucose when the body is experiencing physical stress from environmental, psychological, illness, and self-induced factors.

Physical Activity. All participants lived a sedentary lifestyle, and getting them to move and increase their activity levels was a daunting challenge. When asked what activity they enjoyed, most stated watching TV. When asked what activities they could add to increase their physical activity levels, they told stories of how exercising had consistently failed for them in the past. One participant told the project lead how her blood glucose always goes up when she walks around the grocery store, cleans the house, and even when she walks to the mailbox. In most cases, the concept and problem of increased blood glucose was related to physical stress due to their previous inactivity and overweight or obesity status.

During the sessions, most participants agreed to start slow in their physical activity with only five to ten minutes of activity daily. After one week, most reported an increase in their activity to 10 to 15 minutes. One participant stated: "I lost weight this last week due to my increased exercise." Several others did not lose weight but reported, "my jeans fit better now

that my body is toning up." At the end of the sessions, most participants continued to increase their physical activity and build up endurance and energy they did not have previously.

Satisfaction Survey Findings

Ten of the participants completed all of the counseling sessions. Those who completed were administered a survey concerning their satisfaction with the sessions (Appendix M). In general, the sessions were rated as highly satisfactory with an overall score of 4.96 (Likert Scale 1-5) in assisting the participant in making progress towards goal achievement and problem-solving. Participants found the sessions helpful in identifying their personal goals, modifying behaviors, and attaining a new lifestyle, as changes in their lives were made. However, most regretted the sessions were ending as they provided a forum for discussion of their diabetes and a place to voice any questions about self-management of the disease.

Discussion of Major Findings

The ten participants who completed all six sessions made significant changes to their HbA1c levels, as seen in Appendix L. The findings outlined above were achieved through counseling and education along with the participants' efforts to self-manage their blood glucose levels more effectively. Wellness counseling seeks to have the participant define their own goals and search for their current self-management skills deficits. The goal is defined by the participant, and objectives were set to achieve their goals. Finding ways to overcome one's self-identified deficits in managing the disease was the means to achieve those self-stated goals. Each new session reviewed progress towards the participant's goal and discussed their accomplishments or setbacks. If the setback was significant in the participant's view, they were asked what barriers were encountered and how they might be overcome. As part of the sessions,

participants were encouraged to find their means of overcoming barriers within their lifestyles and current living environments.

While discussing healthy eating and nutrition, it was found that many of the participants were frequently snacking during the day on foods high in carbohydrates, such as chips, candy, sugary drinks, and especially a favorite in this area, sweetened tea. Most of the participants were not taking their finger sticks routinely and had no idea how this snacking affected their overall blood glucose levels. When it was suggested, they take their glucose levels an hour after eating a snack; they became more aware of the effects of snacking. Many immediately switched the snacks they were eating to raw vegetables with dips and sweetened their tea artificially. Most participants also decreased sugary sodas.

One participant reduced her HbA1c after five counseling sessions from 12.0% to 7.0% in another instance. She indicated during the sessions that the medication adherence and the healthy eating sessions were the most helpful. The AADE diabetes education curriculum and ADA guidelines literature support these findings (AADE, 201, and ADA 2020).

Increasing physical activity was the most challenging for most of the participants. As spring approached this rural area, many decided to take up walking or gardening as their activities. Most of the participants found they were limited in walking any distances or plant more extensive gardens in their yards due to the previous inactivity. As they continued to increase their activity levels slowly, they reported increased endurance in the amount of activity they could do. Within a week, most reported they could increase their activity levels to around 15-to 20 minutes a day. They also reported decreased stress associated with their lifestyles. These findings are supported in the literature (McCarthy et al., 2017).

Motivation to change was found in participants who completed all six sessions. They noted their lifestyle changes led to reductions in HbA1c levels. Participant motivation is necessary to make the lifestyle changes required to manage diabetes. Without the individual's motivation to change, significant progress would not occur. The wellness counseling literature supported individual wellness counseling methodology and the education received at Cornell University, where the project lead was certified (AADE, 2016; Myers et al., 2000).

Section V. Interpretations and Implications

Cost and Resouce Management

Budget Data (Actual)

The cost associated with this wellness counseling and education project is found in Appendix N. Personnel time of the site coordinator, the project lead, and administrative personnel assistance accounted for 400 hours. Office supplies cost $56.74, which were absorbed by the project lead. The clinic covered costs associated with phone calls and computer resources. The project lead used her personal computer to track project results, conducted literature reviews and other project documentation needs.

Projected Budget

According to the U.S. Bureau of Labor Statistics, in 2021, a new graduate full-time wellness counselor can expect to make approximately $46,000 per year. Counselors with years of experience can command up to $82,000 per year, depending on experience and duties assigned. Recruitment costs to find a qualified counselor and provision of required employee training are additional costs. A large clinic could likely use a full-time counselor and counsel 30-35 patients every other week for the six bi-weekly sessions. This would total over 150 participants per year. Preexisting materials either from this project or other diabetes education sources are recommended for use.

The cost associated with the sessions would be approximately an hour for each session, including reviewing the participant's medical record and documentation in the electronic medical record. These are costs associated with employing someone responsible for conducting the counseling and education sessions. The facility, materials, and printing costs absorbed in the

overall budget would likely be <$500.00 per month to counsel 150 participants a year, including computer access.

Cost Avoidance Information

A typical office visit for a diabetic patient with uncontrolled glucose was approximately 25 minutes at this clinic. According to the Medicare/Medicaid reimbursement data, a Nurse Practitioner can bill 85% of an office visit billing for code 99214. As of May 1, 2021, the reimbursement for code 99214 is $105.81, and this allowance for a nurse practitioner is $89.94. The HbA1c test is reimbursed at $13.42 by Medicare (2021). Since many of these visits are still necessary in cases where the HbA1c is not reduced to below 7.0%, the quarterly visits will continue until diabetes control is attained.

Annual costs associated with the outpatient treatment of diabetes sequelae are found in Appendix O (Waters & Graf, 2018). If one of these complications were avoided in a participant, the ten-year savings for a patient's care with chronic heart disease would be $118,260. The cost associated with uncontrolled diabetes over a lifetime is not calculable. However, savings over a lifetime of one individual who can control their blood glucose are substantial. Of greater significance is that changes and modifications to the participant's lifestyle improve the quality of life and prevent the detrimental effects of a life with a chronic disease burden from diabetes complications. These are the "real savings" of a wellness counseling and education program.

Implications of the Findings

Wellness counseling can change the quality of life and health of diabetic patients, especially those who have trouble controlling their blood glucose levels due to a lack of knowledge or support. The quality initiative project revealed change was possible when two

factors were present: 1) a motivated participant and 2) a trained wellness counselor with the required knowledge to provide supportive counseling sessions to those who require assistance in their diabetes self-management. Although total control may not be attained in the first round of sessions, continued availability of the counselor to answer questions each participant might have, provide ongoing counseling as needed, and encouragement of each participant to strive for diabetes control was the goal of the initiative. The literature supports these findings on psychosocial factors affecting lifestyle and behavioral changes (Gonzales et al., 2016).

Implications for Patients

When diabetes patients achieve control of their diabetes, they reduce the risk of developing cardiovascular disease, including atherosclerosis, stroke, peripheral artery disease, and kidney disease (American Heart Association (AHA), 2021). Diabetes complications happen slowly and can progress without notice. The participants in this quality initiative had an opportunity to reduce the further development of the complications specific to diabetes. Specifically, nerve damage can lead to numbness in their fingers, hands, feet, and toes called diabetic neuropathy, hearing loss, kidney damage requiring dialysis or transplant, diabetic retinopathy, loss of limbs, osteoporosis, and finally, Alzheimer's disease and dementia. By reducing the risk of complications, a better quality of life is ahead for these individuals.

Implications for Nursing Practice

It is essential for nurses caring for individuals with uncontrolled diabetes to be aware of wellness counseling and its effects on modifying behaviors and changing lifestyles to help patients better control their diabetes. Healthcare providers, nurse practitioners, and nurses must remain aware that changing one's lifestyle depends on the patient's motivation and personal goal

setting. If the patient is not the goal setter and the definer of a future lifestyle, the changes needed to control their blood glucose efforts will not happen. Nurses and nurse practitioners cannot dictate what is to be done by the patient because they will not implement the plan if they disagree with it (ADA, 2021).

Interdisciplinary collaboration is enhanced between healthcare providers and nurses with wellness counseling and education. For example, providers must relay necessary information to nurses on medication requirements, dietary restrictions, and any limiting or restricting physical activity. With this information, nurses can tailor a self-management program with the patient.

Finally, as wellness counseling skills improve with nurses, they can provide counseling to patients with other chronic diseases. Teaching self-management skills and counseling can benefit patients needing assistance in managing a variety of chronic diseases.

Impacts for Healthcare Systems

The healthcare system will benefit in time. Reductions in the complications of uncontrolled diabetes health care costs constitute significant savings in care costs associated with heart disease, stroke, amputations, renal failure, and diabetic retinopathy. In addition, suppose diabetes self-management skills are enhanced and strengthened, the long-term health costs associated with poor control of blood glucose levels can be eliminated, or at the very least, substantially reduced.

Sustainability

Wellness counseling can only be sustained with a commitment by the organization to do so. Immediate savings are usually not seen, but the health of an individual with diabetes can be enhanced with this counseling. The individual's quality of life will improve, and lifetime health

care costs reduced. In a public health department with several annexes, a counselor could counsel patients for the entire department by working with the central office and the annexes separately to share costs.

Dissemination Plan

The project lead shared project outcomes with the site coordinator and the Public Health Department. A poster presentation of this quality initiative took place in July 2021 to the DNP Program faculty. Several organizations within the University asked for presentations of the project, especially individuals in the endocrinology department. If wellness counseling is to flourish at the University, letters to other interested organizations can be written to discuss the positive impacts of wellness counseling in the health care arena. This concept can be implemented in many venues where participant motivation can better improve a person's health. Hypertension, cardiovascular disease, hypercholesterolemia, and many other chronic diseases can benefit from wellness counseling. When used with preventative health care concepts, the wellness counseling concept can assist the patients in improving their lives and health. Finally, the project paper and poster were submitted to The University Scholarship Repository. The dissemination plan is found in Appendix P.

Section VI: Conclusion

Limitations and Facilitators

This project had both its strengths and limitations. A particular strength was the counseling methodology. Wellness counseling allows the participant to set their own goals and make decisions concerning behavior changes. It allows the participant to gain insight into their particular risk factors and lack of solid self-management skills, contributing to their uncontrolled diabetes. In this individual-based counseling methodology, the participant can gain insight into their health behaviors. It also offers insight into personal environments which are not conducive to behavior modification, such as poverty, health illiteracy, and lower education status.

The one specific limitation is that the project size was smaller than anticipated due to difficulties in recruitment, scheduling limitations, and access to individuals with whom the counseling was conducted, such as no access after-hours and limited access during the participants' working hours. The clinic identified 39 eligible patients, with 25 volunteering for the project. However, recruitment difficulties existed with contact issues, and many did not want to participate because it was a program requiring 12 weeks of personal commitment to the project.

Recommendations for Others

Diabetes wellness counseling and education are recommended for all primary care clinics that wish to change the patient outcomes of individuals with uncontrolled diabetes. This concept, of course, takes the commitment of the organization and devotion of assets to realize the benefits of achieving blood glucose control for the patients. Long-term control, improved outcomes, and lifetime cost saving are significant when carried out in conjunction with preventative health and wellness concepts of care. Depending on the clinic’s desires to conduct

wellness counseling and education as an intervention to produce similar outcomes, the use of a part-time counselor or a shared counselor could be considered.

Recommendations for Further Study

Further study should track the outcomes for these participants at the six months and one-year timeframe after the counseling sessions. Additionally, the initiative should continue for those participants needing additional medical care counseling to reinforce the changes to their lifestyle and improvements in medication adherence.

The project lead recommends similar initiatives be tried for patients experiencing uncontrolled hypertension, which is also subject to poor medication adherence, healthy eating and nutrition, and a sedentary lifestyle. Improvements in hypertension control would also prevent the sequelae of atherosclerosis, heart failure, coronary artery disease, strokes, kidney disease, peripheral arterial disease, and cardiovascular morbidity and mortality.

Final Thoughts

This project highlighted the wellness counseling methodology used to assist the participants in making significant gains in their diabetes self-management skills. The wellness counseling method allows participants to set diabetes goals they wish to achieve and define how they can best suit them. When a participant sets their own goals and defines the lifestyle changes and how they will achieve those goals, they are more likely to find success.

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Appendix A

Estimated Average Glucose (eAG)

HbA1c%	mg/dL*	mmol/L
5	97 (76-120)	5. 4 (4.2-6.7)
6	126 (100-152)	7.0 (5.5-8.5)
7	154 (123-185)	8.6 (6.8-10.3)
8	183 (147-217)	10.2 (8.1-12.1)
9	212 (170-249)	11.8 (9.4-13.9)
10	240 (193-282)	13.4 (10.7-15.7)
11	269 (217-314)	14.9 (12.0-17.5)
12	298 (240-347)	16.5 (13.3-19.3)

Note. Data in parentheses are 95% CI. A calculator for converting HbA1c results into eAG, in either mg/dL or mmol/L (ADA, 2020, p. S67).

Appendix B

Estimated Percentage of Diabetics by Racial Category in the United States

The rates of diagnosed diabetes in adults by race/ethnic background are:

- 7.4% of non-Hispanic whites
- 8.0% of Asian Americans
- 12.1% of Hispanics
- 12.7% of non-Hispanic blacks
- 15.1% of American Indians/Alaskan Natives

(CDC, 2018, p. 3)

Appendix C

Literature Search Matrix

Search Conducted in	Search Keywords and MeSH terms	Studies or Articles Found	Studies Meeting Inclusion Criteria	Filters
Medline via PubMed	diet, nutrition, diabetic counseling	46	15	Meta-analysis, RCT, systematic reviews, last five years, peer-reviewed
PubMed	physical activity, diabetes management, counseling	13	5	Meta-analysis, RCT, systematic reviews, last five years, peer-reviewed
PubMed	Wellness counseling, medication adherence, diabetes self-management	9	2	Meta-analysis, RCT, systematic reviews, last five years, peer-reviewed
EBSCO-Based	wellness counseling, reduction in HbA1c, diabetes self-management	2	1	Meta-analysis, RCT, systematic reviews, last five years, peer-reviewed

EBSCO-Based	wellness counseling, diabetes self-management	1	0	Meta-analysis, RCT, systematic reviews, last five years, peer-reviewed
EBSCO-Based	reductions in HbA1c's through lifestyle or behavioral changes	2	1	Meta-analysis, RCT, systematic reviews, last five years, peer-reviewed
EBSCO-Based	wellness counseling	2	1	Peer-reviewed Theory
PubMed	Diabetes Guidelines	1	1	ADA Guidelines

Appendix D

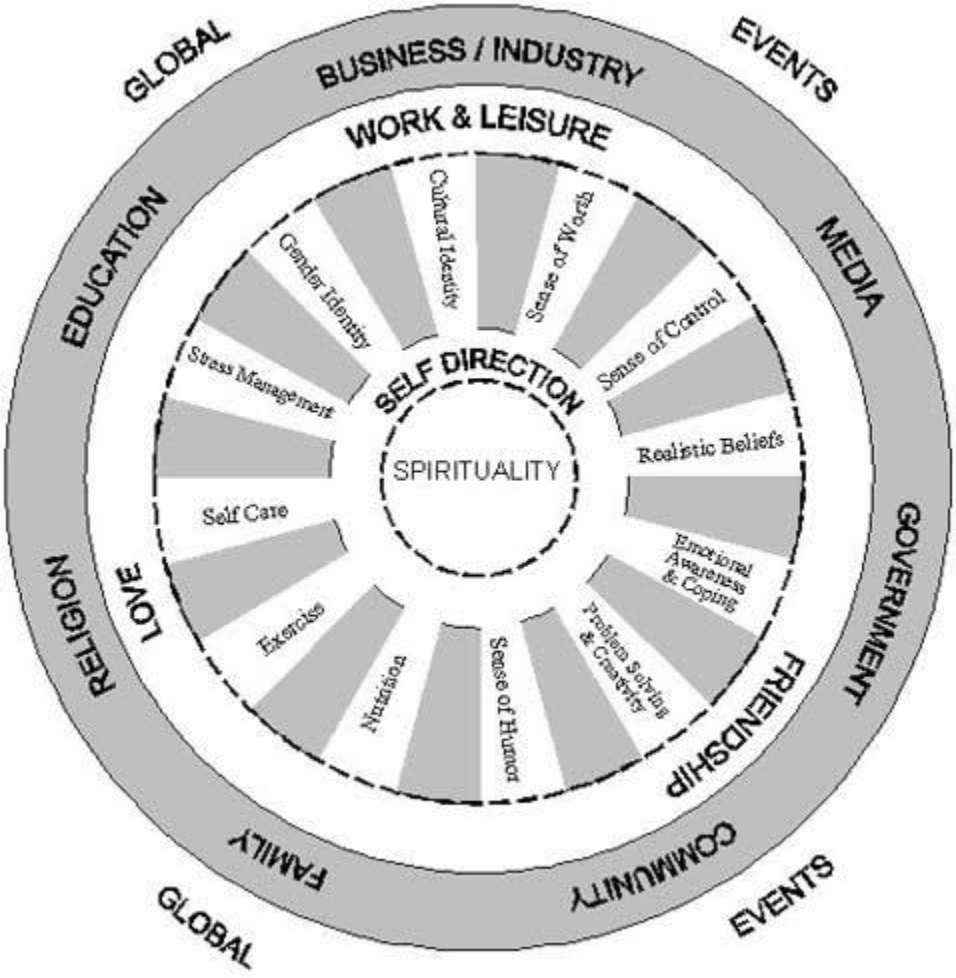
Literature Search Articles

Authors, Title & Journal	Year	Subject Covered	Type of Study
Myers, & Sweeney, Wellness counseling: The evidence base for practice. *Journal of Counseling and Development.*	2008	The concept of wellness counseling and its uses as an evidence-based practice.	Theoretical Model
Myers Sweeney & Witmer. The Wheel of Wellness counseling for wellness: A holistic model for treatment planning. *Journal of Counseling and Development.*	2008	A holistic model for treatment planning.	Theoretical Model
Mottalib, Salsburg, et al., Effects of Nutrition therapy on HbA1c…and risk factors in overweight and obese patients with type 2 diabetes. *Nutrition Journal*	2018	Nutrition counseling for individuals with diabetes	RTC
Lee, Chan, Chua, & Chaiyakunapruk. Comparative effectiveness of telemedicine strategies on type 2 diabetes management: A systematic review and network meta-analysis. *Scientific Reports*	2017	Network meta-analysis showed that all telemedicine strategies were effective in reducing HbA1c significantly	Systematic Revies and Network Meta-analysis
Gonzales, Tanenbaum & Commissariat. Psychological factors in medication adherence and	2016	Health behaviors such as medication adherence, diet, physical activity, blood glucose self-monitoring help achieve	Meta-Analysis

diabetes self-management: Implications for research and practice. *American Psychologist*		optimal glycemic control in diabetes and interventions.	
McCarthy, Edwardson, et al. Change in sedentary time, physical activity, body weight, and HbA1c in high-risk adults. *Medicine & Science in Sports and Exercise.*	2017	This study aimed to quantify the associations between body weight changes, sedentary time, and moderate to vigorous physical activity (MVPA) time with HbA1c levels for a 3-yr period among adults at high risk of type 2 diabetes.	RTC
Chiavaroli, Mirrahimi, et al., Low glycemic index diet improves glycemic control and cardiovascular risk in type 2 diabetes, design, and methods for a randomized controlled trial. *BMJ Open*	2016	Design of low-glycemic diets	RTC
Wayne, Perez, et al. Health coaching reduces HbA1c in type 2 diabetic patients from a lower-socioeconomic status community: A randomized controlled trial. *Journal of Medical Internet Research*	2015	Adoptions of health behaviors are crucial for maintaining good health after type 2 diabetes mellitus (T2DM) diagnoses. However, adherence to glucoregulatory behaviors like regular exercise and a balanced diet can be challenging, especially for lower socioeconomic status (SES) communities.	RTC
Jacob, Chattopadhyay, et al. Economics of community health workers for chronic disease: Findings from community guide systemic reviews. *American Journal of Preventative Medicine*	2019	This paper examines the available evidence on the cost, economic benefit, and cost-effectiveness of interventions that engage community health workers in preventing cardiovascular disease, preventing type 2 diabetes, and managing type 2 diabetes.	Systematic Review

Appendix E

The Wheel of Wellness.



Note. The Wheel of Wellness: A holistic model for treatment planning (p. 253) by J. E. Myers, T. J. Sweeney, and J. M. Witmer (2000).

Appendix F

PDSA Worksheet Institute for Healthcare Improvement

PDSA Worksheet Objective:

_____

_____

_____

Plan: Plan the test, including a plan for collecting data. Questions and predictions:

- _____
  _____
  _____
- _____
  _____
  _____

Who, what, where, when:

_____

_____

_____

Plan for collecting data:

_____

_____

_____

Do: Run the test on a small scale. Describe what happened. What data did you collect? What observations did you make?

_____

_____

_____

Study: Analyze the results and compare them to your predictions. Summarize and reflect on what you learned:

_____

_____

Act: Based on what you learned from the test, make a plan for your next step. Determine what modifications you should make — adapt, adopt, or abandon:

_____

_____

_____

(IHI, 2017)

Appendix G

Qualitative Comment/Statements Made by Participants

Participants # and Date	**Age**	**Gender**	**Counseling Topic Medication Adherence Comments**	**Counseling Topic Healthy Eating and Nutrition Comments**	**Counseling Topic Physical Activity Comments**
1.					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Appendix H

Wellness Counseling Outline and Counseling Guide

Introduction Session and Session on Medication Adherence (two sessions):

Participants Identifying Number _____ and initial HbA1c _____

The participant identified issues in diabetes self-management.

What is the participant-directed goals for diabetes management?

- A decrease in A1c? (Current-- %)
- Increase in physical activity?
- Improve nutrition and diet?
- Medication adherence?

Let's talk about some of the general barriers you are encountering.

- Disabilities? Physical Limitations?
- Financial?
- Availability? Transportation?
- Memory? Complex Regimen? Emotional or depression?
- Social Fears of Others Knowing of your Disease Status.
- Other Barriers?

Medication adherence.

- Let's talk about what medications you are taking and how exactly you are taking them.
    - Are you taking them at the same time daily?
    - Do you miss any doses? How many times over the last two weeks have you missed a dose?
    - Action: Read out loud what the medication bottle says.
- Possible questions
    - Are you tolerating the medication? Any side effects?
    - Do you know the precautions for taking the medication?
    - What is the hardest part of taking your medications?

- Tell me your understanding of what each of the medications is supposed to be doing for your diabetes?

- Knowledge Questions
  - Do you know the symptoms of hypoglycemia?
  - Do you know the signs of hyperglycemia?

- Tell me how you monitor your Blood Glucose.
  - How often are you taking your blood sugars daily?
  - Please keep a log of your blood sugar sticks for the next several weeks so we can review them at each session. Log the time and reading.
  - On your log, will you please write down when you take your medications or if you have missed a dose of one of your medications?

- Assessment:

- Plan for Next Session:

Appendix H (cont.)

Wellness Counseling Outline and Counseling Guide

Sessions on Physical Activity (two sessions).

Participants Identifying Number _____ and initial HbA1c _____

The participant identified issues in diabetes self-management concerning physical activity.

- Tell me about your current level of physical activity.
- Progress comes in stages.
- Goal setting.
- Tell me about your idea of the amount of time you can dedicate to physical activity.
- Tell me about what kind of activities you like to pursue.
- Knowledge
    - Building endurance.
    - The intensity of activities.
    - Maintenance using aerobic activities and resistance building.
    - Physical activity and diabetes medications.
- Assessment
- Plan for the next session.
    - Tell me about how the goal towards improving your physical activity went.
    - Tell me about what you were able to achieve.
    - There are no failures—just starting new each day and going forward to attain the goals you set.

Appendix H (cont.)

Wellness Counseling Outline and Counseling Guide

Sessions on Healthy Eating and Nutrition (two sessions).

Participants Identifying Number _____ and initial HbA1c _____

The participant identified issues in diabetes self-management concerning healthy eating and nutrition.

- Tell me about your current eating habits and nutrition.
- Let's talk about healthy eating and metabolism, blood glucose control, and lipids.
- Tell me about your meal planning.
- Knowledge items. Tell me what you know about healthy eating.
  - Types of foods to eat to reduce blood glucose contents, glycemic index foods. Ex: Fat-free milk, eggs, non-starchy vegetables.
  - Carbohydrate counting using nutrition facts on food labels. The number of servings in a container.
  - Snacks
  - Portion control and serving size.
  - Hydration
  - Sugar substitutes.
  - Alcohol use.
  - Affordability and shopping for food.
- Assessment
- Plan

Appendix I

Pre- and Post-Counseling HbA1c Quantitative Data Form

Participants #	Pre-Counseling HbA1c	Post-Counseling HbA1c	Difference (+ or -)	Comments
1.				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
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16				
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19				
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Appendix J

Wellness Counseling Satisfaction Survey Question and Responses

a. Rate the usefulness of the sessions in assisting the participant's progress towards goal achievement and problem-solving.
b. Were the sessions useful in the identification of participant-directed goals?
c. Was the patient able to make any behavior or lifestyle modifications?
d. Assess the patient's satisfaction with the wellness counseling sessions.
e. Discuss any participant concerns.

Participants #	**a.**	**b.**	**c**	**d**	**e**
1.					
2					
3					
4					
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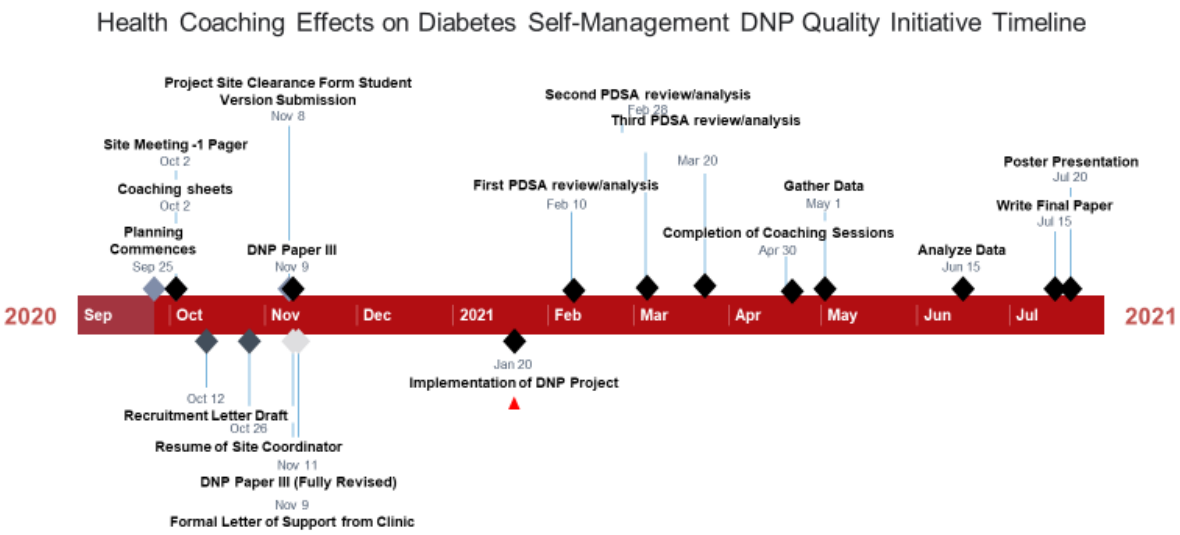
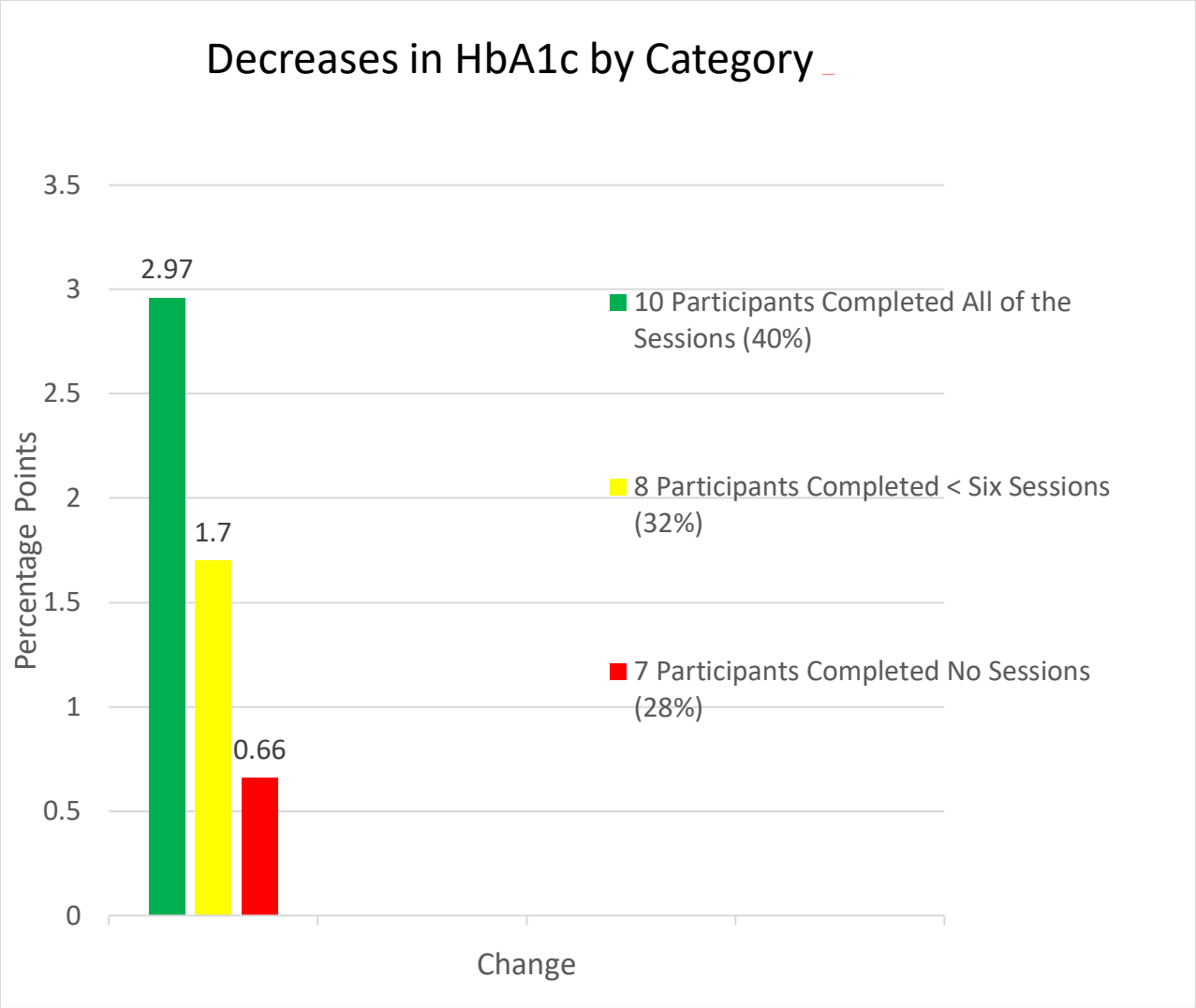
Appendix K

Wellness Counseling Effects on Diabetes Self-Management Planning Timeline



Appendix L

Change in HbA1c Level



Appendix L (cont).

Range of Reductions for the Participants Completing All of the Sessions

Pre HbA1c	Post HbA1c		Difference
17.4	12.2		5.2
12.2	7.6		4.6
12.4	8.7		3.7
12	9		3
10.2	8.1		2.1
10.2	8.7		1.3
9	8.1		0.9
Average			2.97

Appendix M

Satisfaction with Wellness Counseling Sessions

Rate the usefulness of the sessions in assisting the participant's progress towards goal achievement and problem-solving.	**5**
Were the sessions useful in the identification of participant-directed goals?	**5**
Was the patient able to make any behavior or lifestyle modifications?	**5**
Assess the patient's satisfaction with the wellness counseling sessions.	**4.85**
Overall	**4.96**

Note: Satisfactions scores based on a Likert-like scale of 1-5, with 5 being the highest score and one being the lowest score.

Appendix N

Project Lead and Clinic Costs to Execute the Wellness Counseling Sessions

Budget Costs

Personnel	*Hours*
Project Lead Hours for Research	32
Project Lead ADA Guidelines Reading Hours (pertinent to the project)	25
Project Lead Training for Wellness Counseling	47
Development of Wellness Counseling Guides	12
Site Coordinator's Reading of Project Materials	11
Site Coordinator Mtgs (Project Lead)	15
Site Coordinator Mtgs (Site Coordinator)	12
Administrative Assistance from Office Personnel	3
Recruitment of Participant Calls and Office Visits	43
Wellness Counseling Sessions/Implementation	108
Documentation of Sessions	52
Post-Brief of Counseling Sessions to Site Coordinator	22
Project Analysis	18
Total Hours	**400**

Financial	*Dollars*
Paper	$14.24
Ink	$37.50
Phone (Costs Absorbed by Clinic System)	Unknown
Folders	$5.00
Total Costs	**$56.74**

Appendix O

Annual Per Capita Costs of Medical Care Associated with Diabetes in the Outpatient Setting in 2016

	Costs
Alzheimer's or Vascular Dementia	$47,746
Congestive Heart Failure	$5,967
Coronary Heart Disease	$11,826
Dyslipidemia	$792
End Stage Renal Disease	$7,285
Stroke	$12,062

(Waters, & Graf, 2018).

Appendix P

Dissemination Plan

Preliminary Presentation to Site Coordinator	June 10, 2021
Poster Presentation	July 14, 2021
The Scholarship	July 30, 2021
Presentation to Endocrinology	September 2021
Presentation to Neurology	September 2021
Letter with QI Project Final Paper to Regional Primary Care Providers	October 2021

Appendix Q

Doctor of Nursing Practice Essentials

	Description	Demonstration of Knowledge
Essential I ***Scientific Underpinning for Practice***	**Competency** – Analyzes and uses the information to develop practice **Competency** -Integrates knowledge from humanities and science into the context of nursing **Competency** -Translates research to improve practice **Competency** -Integrates research, theory, and practice to develop new approaches toward improved practice and outcomes	During this Quality Initiative (QI), the project lead took her previous knowledge of nursing, humanities, and science and integrated it into practice using wellness counseling to assist patients better understand the disease of diabetes and improve the lowering of their HbA1c outcomes. This individualized counseling approach dealt with each participant's specific issues in diabetes self-management.
Essential II ***Organizational & Systems Leadership for Quality Improvement & Systems Thinking***	**Competency** –Develops and evaluates practice based on science and integrates policy and humanities **Competency** –Assumes and ensures accountability for quality care and patient safety **Competency** -Demonstrates critical and reflective thinking **Competency** -Advocates for improved quality, access, and cost of health care; monitors costs and budgets **Competency** -Develops and implements innovations incorporating principles of change **Competency** - Effectively communicates practice knowledge in writing and orally to improve quality **Competency** - Develops and evaluates strategies to manage ethical dilemmas in patient care and within health care delivery systems	The project lead developed the counseling guides from evidence-based literature and wellness counseling classes. The project lead assumed accountability for the project. She advocated for improving the participant's life through improved health care and used this innovative approach to assist participants in making lifestyle changes and better manage their diabetes. At the same time, she acted as a support person for the individuals to ask questions and gain positive support for their changing lives. The project lead demonstrated critical and reflective thinking during and after counseling sessions to give her patient the best care possible.
Essential III ***Clinical Scholarship & Analytical Methods for Evidence-Based Practice***	**Competency** - Critically analyzes literature to determine best practices **Competency** - Implements evaluation processes to measure process and patient outcomes **Competency** - Designs and implements quality improvement strategies to promote safety, efficiency, and equitable quality care for patients **Competency** - Applies knowledge to develop practice guidelines **Competency** - Uses informatics to identify, analyze, and predict best practice and patient outcomes **Competency** - Collaborate in research and disseminate findings	After the conduct of several literature searches and attendance in four courses of wellness counseling education at Cornell University, the project lead was prepared to conduct wellness counseling sessions. She designed and implemented the quality improvement strategy and applied American Diabetes Association (ADA) guidelines to the counseling efforts. In addition, she used the American Association of Diabetes Educators curriculum to successfully guide participants in understanding diabetes and applying evidence-based lifestyle changes to their diabetes management skills. The project lead will disseminate findings at project completion.

	Description	**Demonstration of Knowledge**
Essential V ***Health Care Policy of Advocacy in Health Care***	**Competency-** Analyzes health policy from the perspective of patients, nursing, and other stakeholders **Competency** – Provides leadership in developing and implementing health policy **Competency** –Influences policymakers, formally and informally, in local and global settings **Competency** – Educates stakeholders regarding policy **Competency** – Advocates for nursing within the policy arena **Competency-** Participates in policy agendas that assist with finance, regulation, and health care delivery **Competency** – Advocates for equitable and ethical health care	The project lead analyzed the health care policy in the clinic setting. She conducted the QI project and used and modified health care delivery to meet the parameters necessary to implement wellness counseling within that setting. She influenced the nurse practitioner to accept the counseling guides and the topics chosen for the QI project. She ensured all qualified individuals were offered an opportunity to participate in the individualized counseling sessions. At the end of each counseling day, the project lead briefed the nurse practitioner on the day's events and issues. She advocates using this counseling program for counseling uncontrolled diabetes individuals by both the nurses and nutritionists currently at the clinic.
Essential VI ***Interprofessional Collaboration for Improving Patient & Population Health Outcomes***	**Competency-** Uses effective collaboration and communication to develop and implement the practice, policy, standards of care, and scholarship **Competency** – Provide leadership to interprofessional care teams **Competency** – Consult intraprofessionally and interprofessionally to develop systems of care in complex settings	Collaborated and communicated with the Nurse Practitioner (NP) as to what standards of care and nursing theories and policy were to be used in the counseling sessions. Provided feedback as to how the counseling sessions were proceeding and any issues needing the NP's attention. Spoke often with the nurse who is currently qualifying as a diabetic nurse educator on the progress of the QI project to keep her informed on the initiative.
Essential VII ***Clinical Prevention & Population Health for Improving the Nation's Health***	**Competency-** Integrates epidemiology, biostatistics, and data to facilitate individual and population health care delivery **Competency** – Synthesizes information & cultural competency to develop & use health promotion/disease prevention strategies to address gaps in care **Competency** – Evaluates, and implements change strategies of models of health care delivery to improve quality and address diversity	Used knowledge of health care provision for individuals who live in socioeconomically disadvantaged communities. Used cultural knowledge to deal with Asian, African American, Veterans, and other cultures to ensure counseling was tailored to their needs. The biggest issue was dealing with the lack of financial means most of the participants were burdened with. Healthy eating and nutrition sessions allowed the participant to decide what items they could eat to reduce carbohydrates in their diet and used an eating strategy that included the food found in their culture or low-income situations.

	Description	**Demonstration of Knowledge**
Essential VIII ***Advanced Nursing Practice***	**Competency-** Melds diversity & cultural sensitivity to conduct a systematic assessment of health parameters in varied settings **Competency** – Design, implement & evaluate nursing interventions to promote quality **Competency** – Develop & maintain patient relationships **Competency** –Demonstrate advanced clinical judgment and systematic thoughts to improve patient outcomes **Competency** – Mentor and support fellow nurses **Competency-** Provide support for individuals and systems experiencing change and transitions **Competency** –Use systems analysis to evaluate practice efficiency, care delivery, fiscal responsibility, ethical responsibility, and quality outcomes measures	Wellness counseling was new to participants taking part in this QI project. The project lead needed to deal individually with each participant to understand the diversity and cultures found in this community. In designing the project, she promoted quality changes that were acceptable to everyone and their family. Her cultural background knowledge allowed her to work with diversity in the individuals' backgrounds and assist them in developing diet changes that suited them best. By considering a person's diverse background, she provides support to the individuals that produced quality outcomes.